

# Work Order ID 86479

June-29-12 1:30:54 PM

**\*86479\***

Page 1

Item ID: D4545-047

Accept

**\*N900040100\***

Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Retainer, Inner, LH (Top)

Start Date: 29/06/2012 Start Qty: 10.00

**\*10\***

Cust Item ID:

Required Date: 13/07/2012 Req'd Qty: 10.00

**\*10\***

Customer:

Reference:

Approvals: Process Plan: *MLJ*

Date: *12/06/29* Tooling:

Date:

Run Start **\*NR1\***

QC:

Date: SPC (Y/N):

Date:

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr

Revision Nbr

D4545

C

100

Pick Kit

0.00

**\*100\***

Packaging

Memo

0.00

Packaging

110

0.00

**\*110\***

Small Fab

Memo

0.00

Small Fab

1- ASSEMBLE AND BEND TABS AS PER DWG

2- DISASSEMBLE AND DEBURR

3- DIMPLE HOLES AS PER DWG

*12* *12/07/27*  
*SA* *12/07/22*  
*12/07/27*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Work Order ID 86479

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**\*10\***

Customer:

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Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start **\*NR1\***

QC:

Date:

SPC (Y/N):

Date:

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120	QC5- Inspect part completeness to step on W/O	0.00							
<b>*120*</b>									
QC	Memo	0.00							
Quality Control									
130	Chemical Conversion Coat per QSI005 4.1	0.00							
<b>*130*</b>									
HandFinish	Memo	0.00							
Hand Finishing									
140	QC7-Inspect Chemical Conversion Coat	0.00							
<b>*140*</b>									
QC	Memo	0.00							
Quality Control									

DAS  
16  
2-83 12/08/14

12

12 12 12-8-15

12x

12/08/15

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Page 3

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Cust Item ID:

Required Date: 13/07/2012 Req'd Qty: 10.00

**\*10\***

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_

Date: \_\_\_\_\_

Tooling: \_\_\_\_\_

Date: \_\_\_\_\_

Run Start **\*NR1\***

QC: \_\_\_\_\_

Date: \_\_\_\_\_

SPC (Y/N): \_\_\_\_\_

Date: \_\_\_\_\_

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

145

0.00

**\*145\***

Small Fab

Memo

0.00

Small Fab

INSTALL NUT PLATES AND ASSEMBLE AS PER DWG

12x

12/08/15

147

QC5- Inspect part completeness to step on W/O

0.00

**\*147\***

QC

Memo

0.00

Quality Control

Smb (DAS) 12-8-15 16 12/08/15

12

-047

190

Identify as per dwg & Stock Location: 163

0.00

**\*190\***

Packaging

Memo

0.00

Packaging

sl

12/08/16

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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**Work Order ID 86479****\*86479\***

Page 4

June-29-12 1:30:55 PM

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**\*N900040100\***Setup Start **\*NS1\***

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Stop **\*NS2\***

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Start Date: 29/06/2012 Start Qty: 10.00

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Cust Item ID:

Required Date: 13/07/2012 Req'd Qty: 10.00

**\*10\***

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start **\*NR1\***

QC:

Date:

SPC (Y/N):

Date:

Stop **\*NR2\***Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

200

QC21- Final Inspection - Work Order Release

0.00

**\*200\***

QC

Memo

0.00

Quality Control

MLJ 12/08/16  
MLJ  
12/08/16

W/O:		WORK ORDER CHANGES					
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Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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**NOTE:** Date & initial all entries



# Picklist Print

June-29-12 1:30:58 PM

Page 1

Work Order ID: 86479

\*86479\*

Parent Item: D4545-047

\*D4545-047\*

Parent Item Name: Retainer, Inner, LH (Top)

Start Date: 29/06/2012

Required Date: 13/07/2012

Start Qty: 10.00

Required Qty: 10.00

Comments: IPP REV:A 12.01.13 new issue DD verf:JLM IPP REV:B  
12.02.27 AS PER DWG REV.B DD VERF:EC IPP REV:C 12.05.08  
as per dwg revC DD verf:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D4541-7		Manufactured	No			100	Each	8.0000	1	10			

\*D4541-7\*

Bracket

\*\*

Location

Loc Qty

Loc Code

FG

-1

B 87973 (A)  
084466

78768

3

81264

2

GA

9

84961

3

D4542-7

Manufactured No

100

Each

9.0000

1

10

\*D4542-7\*

Retainer, Inner

\*\*

Location

Loc Qty

Loc Code

FG

3

78774

3

GA

6

81269

4

84962

2

MS20426AD3-4

Purchased No

145

Each

2,750.000

16

160

\*MS20426AD3-4\*

RIVET

\*\*

Location

Loc Qty

Loc Code

ST316

2750

104374

236

110398

2514

GP 12/08/15

GP 12/08/15

GP 12/08/15

192

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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# Picklist Print

June-29-12 1:30:58 PM

Page 2

Work Order ID: 86479

\*86479\*

Parent Item: D4545-047

\*D4545-047\*

Parent Item Name: Retainer, Inner, LH (Top)

Start Date: 29/06/2012

Required Date: 13/07/2012

Start Qty: 10.00

Required Qty: 10.00

MS21059L3K

Purchased

No

145

Each

206.0000

8

80

\*MS21059L3K\*

\*\*

Nutplate

Location

Loc Qty

Loc Code

ST302

206

121114

206

*PS 12/08/15*  
*96*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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ITEM	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	PART NUMBER	DESCRIPTION
-041	-042	-043	-044	-045	-046	-047	-048			
X									D4545-041	RETAINER, LH INNER (LOWER)
	X								D4545-042	RETAINER, RH INNER (LOWER)
		X							D4545-043	RETAINER, LH INNER (SIDE)
			X						D4545-044	RETAINER, RH INNER (SIDE)
				X					D4545-045	RETAINER, LH INNER (TOP CORNER)
					X				D4545-046	RETAINER, RH INNER (TOP CORNER)
						X			D4545-047	RETAINER, LH INNER (TOP)
							X		D4545-048	RETAINER, RH INNER (TOP)
1	1								D4541-1	BRACKET
2		1							D4541-2	BRACKET
3			1	1					D4541-3	BRACKET
4					1	1			D4541-5F	BRACKET
5							1	1	D4541-7	BRACKET
6	1								D4542-1	RETAINER
7		1							D4542-2	RETAINER
8			1	1					D4542-3	RETAINER
9					1	1			D4542-5	RETAINER
10							1	1	D4542-7	RETAINER
11	40	38	28	28	12	12	16	16	MS20426AD3-4	RIVET
12	19	18	14	14	6	6	8	8	MS21059L3K	NUTPLATE
13	1	1							MS21061L3K	NUTPLATE

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 26479 MJS  
12/06/29

RELEASED  
2012-05-07  
MJS

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: AFTER FORMING AND PRIOR TO ASSEMBLY, CHEMICAL CONVERSION COAT D4541-X & D4542-X PER DART QSI 005 4.1
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N & B/N PER DART QSI 044 6.1
- 7) WEIGHT: -041/-042 = 0.38 lbs, -043/-044 = 0.27 lbs,  
-045/-046 = 0.11 lbs, -047/-048 = 0.15 lbs
- 8) BEND INDIVIDUAL TABS ON D4541-X BRACKETS TO CORRESPONDING "A#" (A1, A2, ETC.,) VALUE

C	CHG FINISH (ZN A8-1); D4541-5F WAS -5 (C4-1) REMOVE TRANSFER DRILL NOTES	CP	12.04.20
B	ADD FINISH (ZN A8-1)	CP	12.02.01
A	NEW ISSUE	CP	12.01.09
REV.	DESCRIPTION	BY	DATE
DESIGN	qp		
DRAWN	qp		
CHECKED	ASS		
MFG. APPR.	MJS		
DE APPR.	MJS		
DATE	12.04.20		

<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWING NO. D4545	REV. C SHEET 1 OF 9
TITLE RETAINER, INNER	SCALE NTS
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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

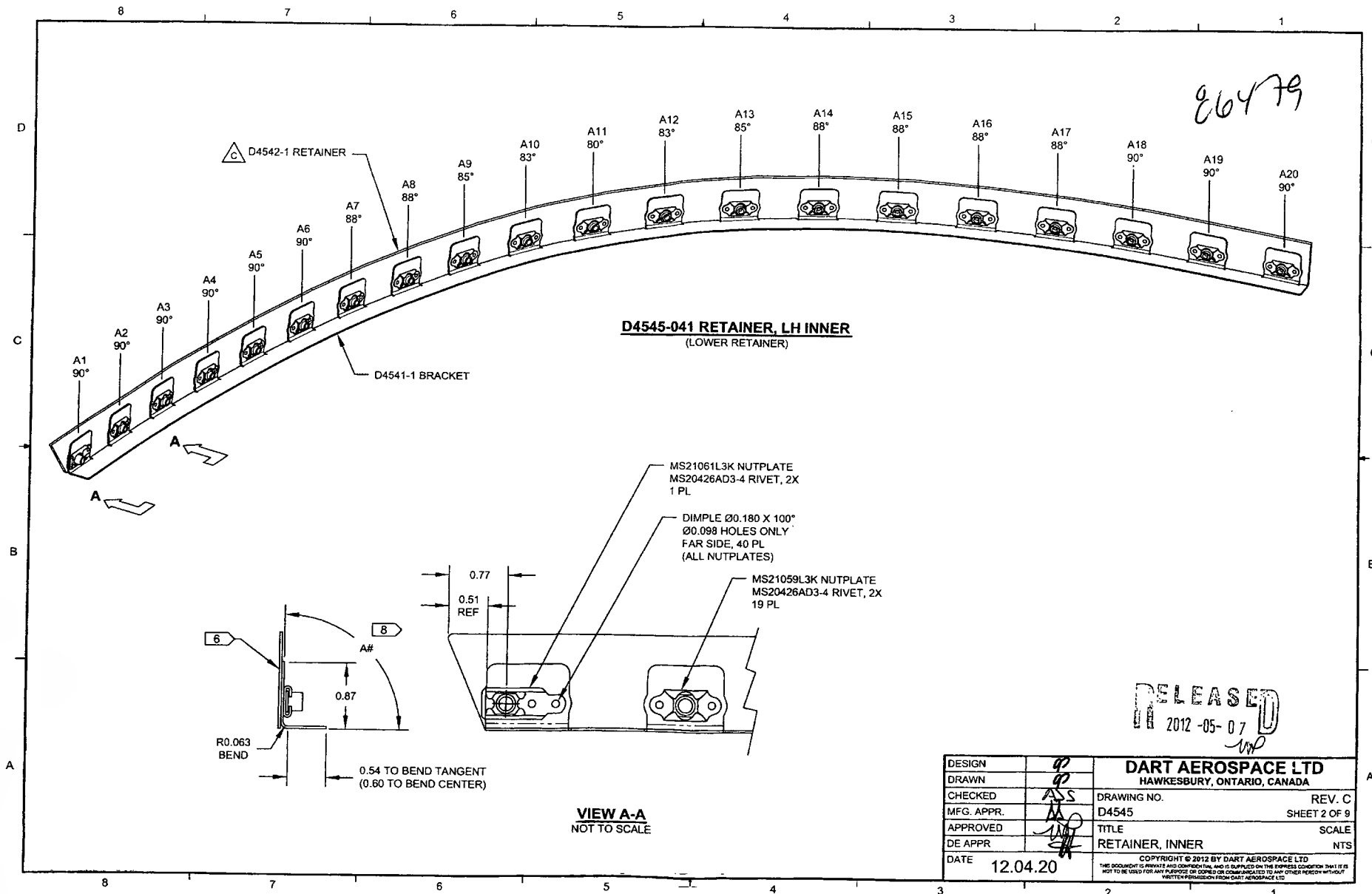
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Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

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26479



RELEASED  
2012-05-07

DESIGN	92	<b>DART AEROSPACE LTD</b>	
DRAWN	92	HAWKESBURY, ONTARIO, CANADA	
CHECKED	ASS	DRAWING NO.	REV. C
MFG. APPR.	MAO	D4545	SHEET 2 OF 9
APPROVED	MAO	TITLE	SCALE
DE APPR	MAO	RETAINER, INNER	NTS
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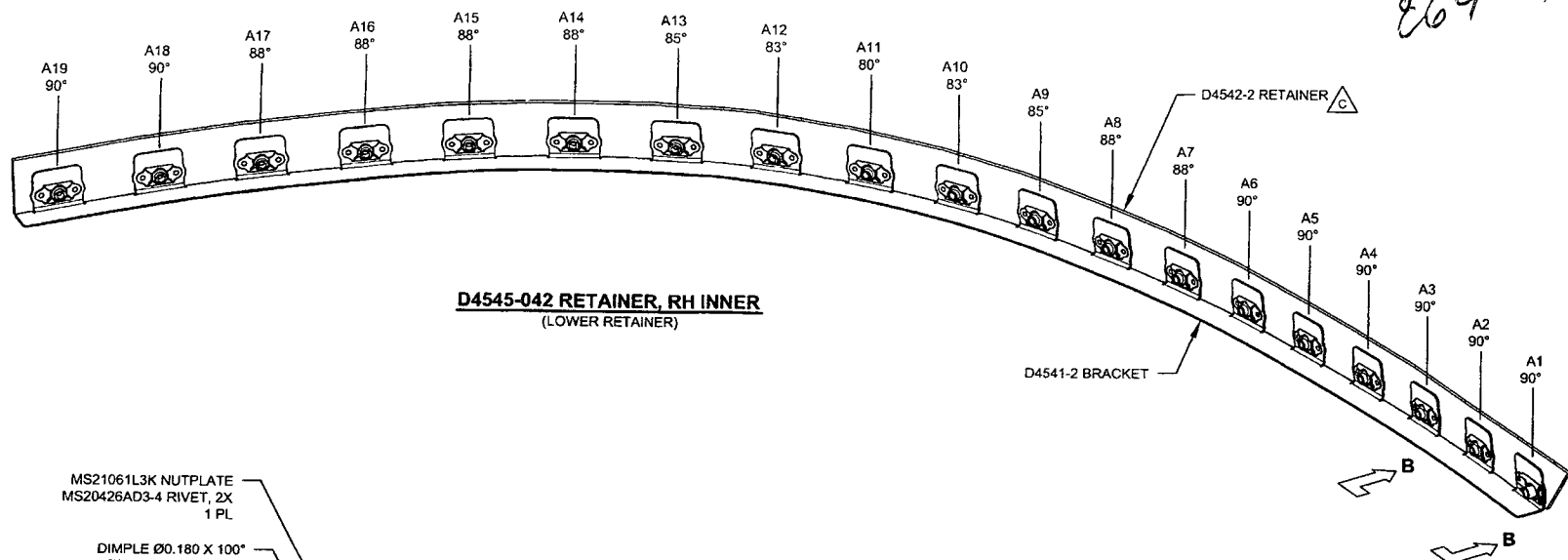
Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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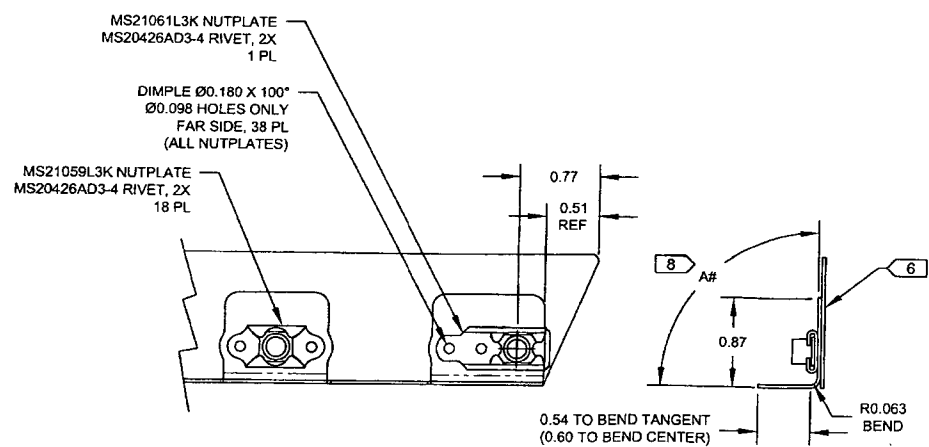
**NOTE:** Date & initial all entries



26479



**D4545-042 RETAINER, RH INNER**  
(LOWER RETAINER)



**VIEW B-B**  
NOT TO SCALE

2012-05-07

DESIGN	qp	<b>DART AEROSPACE LTD</b>	
DRAWN	qp	HAWKESBURY, ONTARIO, CANADA	
CHECKED	ASS	DRAWING NO.	REV. C
MFG. APPR.	MS	D4545	SHEET 3 OF 9
APPROVED	MS	TITLE	SCALE
DE APPR	MS	RETAINER, INNER	NTS
DATE	12.04.20	COPYRIGHT © 2012 BY DART AEROSPACE LTD	
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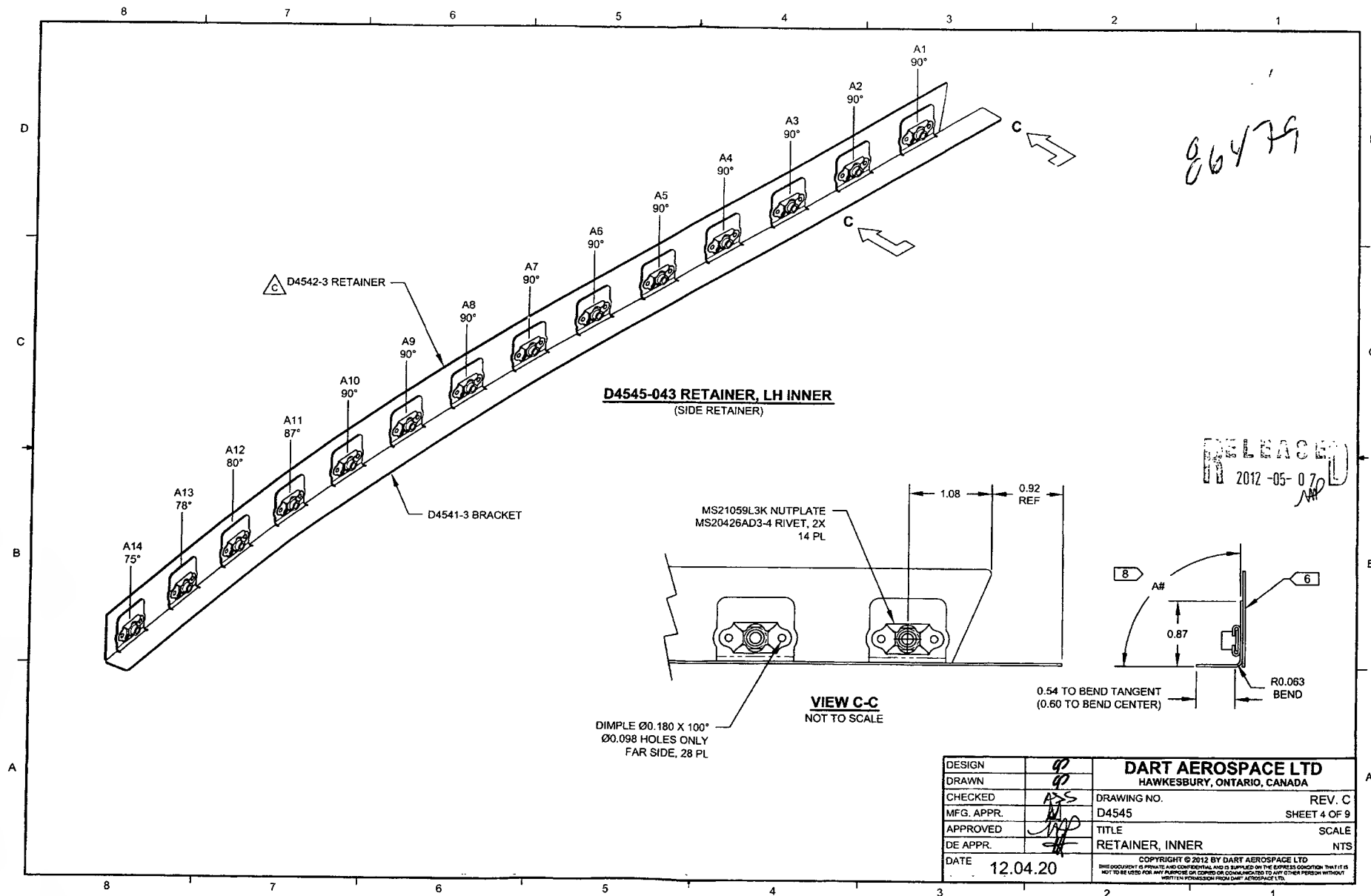
W/O:		WORK ORDER CHANGES					
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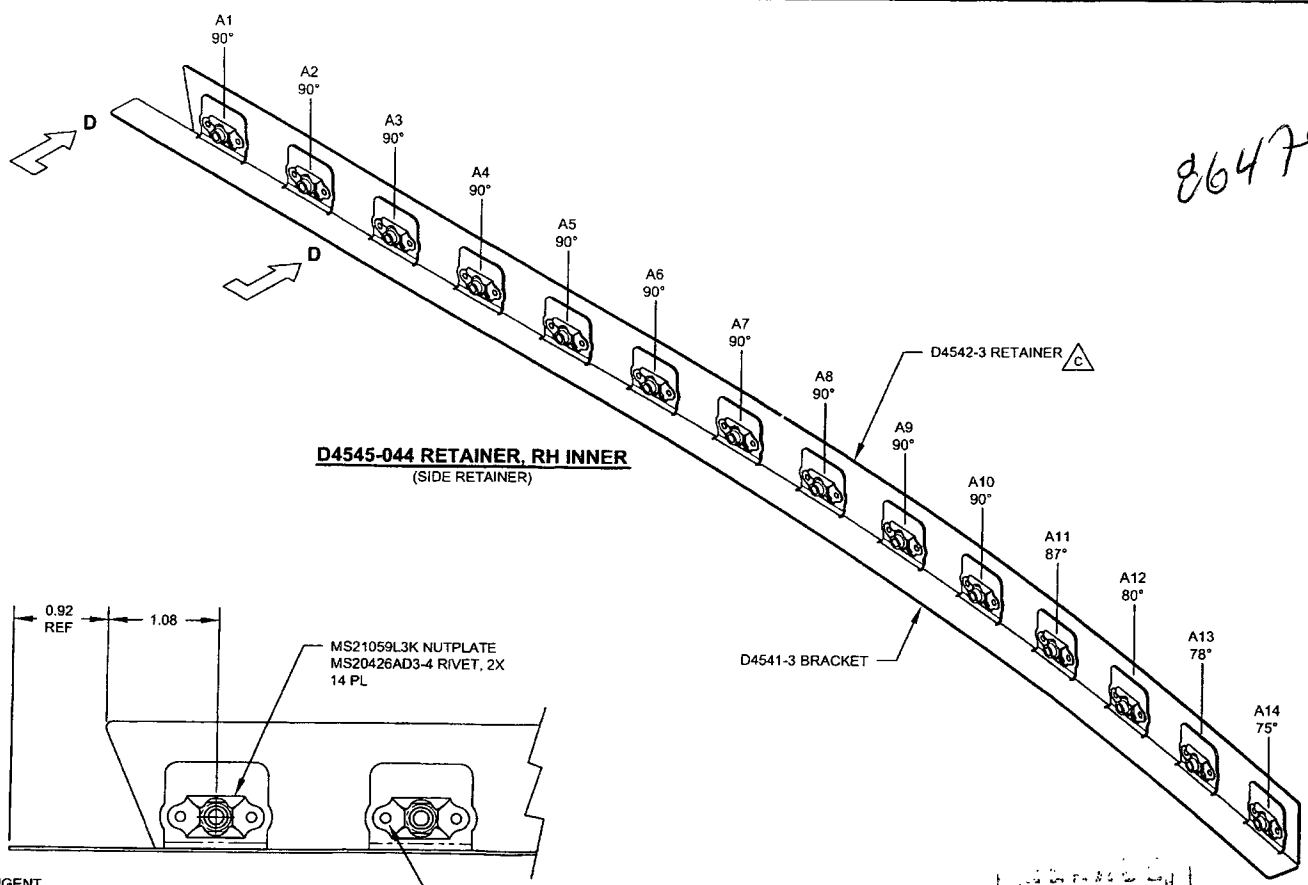
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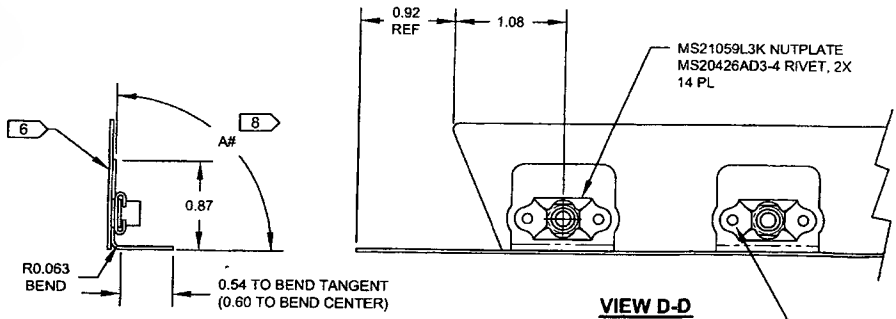
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86479



**D4545-044 RETAINER, RH INNER**  
(SIDE RETAINER)



**VIEW D-D**  
NOT TO SCALE

DIMPLE Ø0.180 X 100°  
Ø0.098 HOLES ONLY  
FAR SIDE, 28 PL

2012-05-03

DESIGN		<b>DART AEROSPACE LTD</b>	
DRAWN		HAWKESBURY, ONTARIO, CANADA	
CHECKED	AS	DRAWING NO.	REV. C
MFG. APPR.		D4545	SHEET 5 OF 9
APPROVED		TITLE	SCALE
DE APPR.		RETAINER, INNER	NTS
DATE	12.04.20	<small>COPYRIGHT © 2011 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

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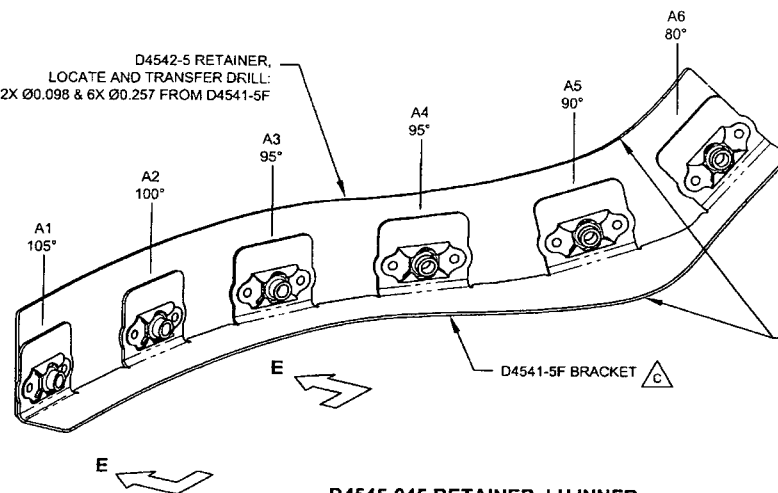
Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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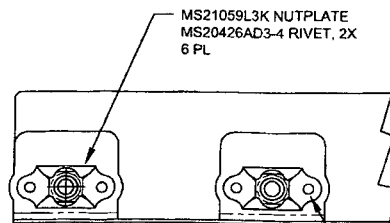
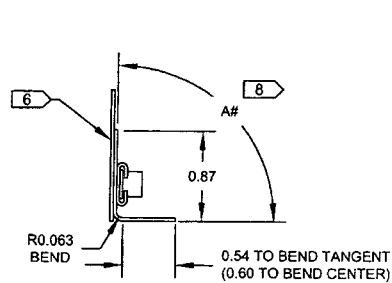
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D4542-5 RETAINER,  
LOCATE AND TRANSFER DRILL:  
12X Ø0.098 & 6X Ø0.257 FROM D4541-5F



**D4545-045 RETAINER, LH INNER**  
(TOP CORNER RETAINER)



DIMPLE Ø0.180 X 100°  
Ø0.098 HOLES ONLY  
FAR SIDE, 12 PL

DESIGN	98	<b>DART AEROSPACE LTD</b>	
DRAWN	98	HAWKESBURY, ONTARIO, CANADA	
CHECKED	AS	DRAWING NO.	REV. C
MFG. APPR.		D4545	SHEET 6 OF 9
APPROVED		TITLE	SCALE
DE APPR.		RETAINER, INNER	NTS
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26479

2012-05-07

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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

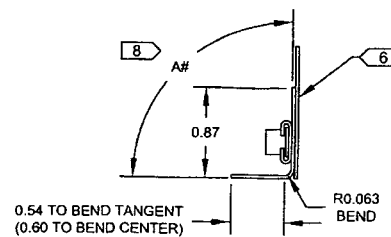
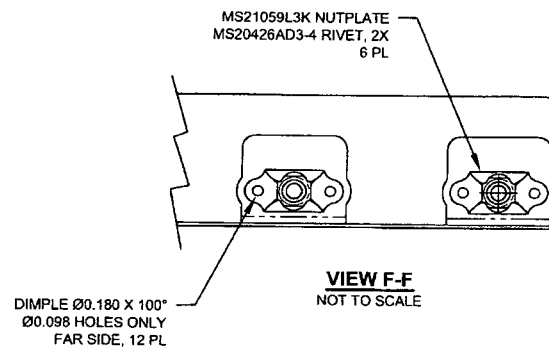
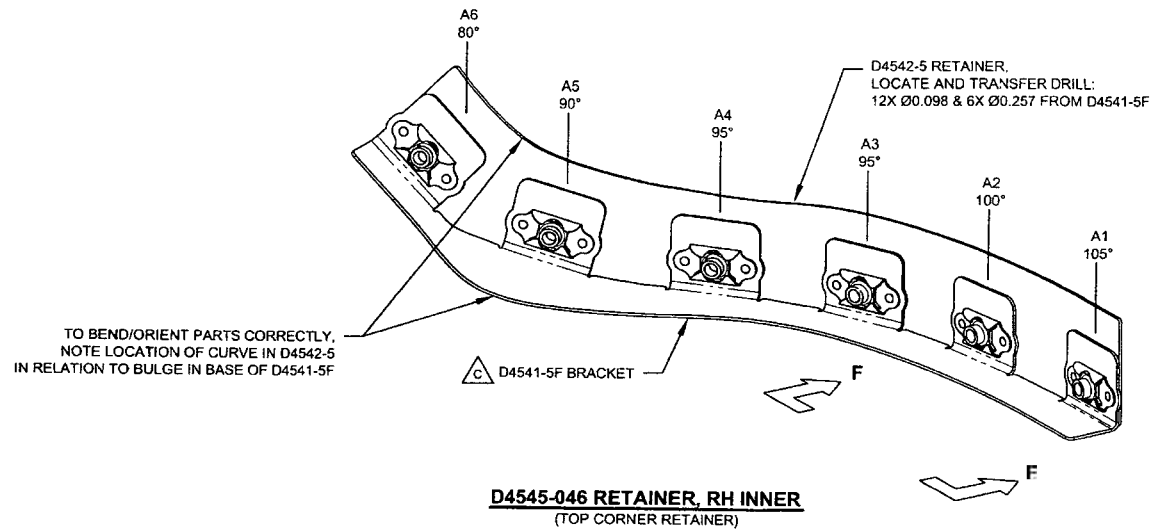
Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries





DESIGN	90	<b>DART AEROSPACE LTD</b>	
DRAWN	90	HAWKESBURY, ONTARIO, CANADA	
CHECKED	ASS	DRAWING NO.	REV. C
MFG. APPR.	MD	D4545	SHEET 7 OF 9
APPROVED	MD	TITLE	SCALE
DE APPR	MD	RETAINER, INNER	NTS
DATE	12.04.20	COPYRIGHT © 2012 BY DART AEROSPACE LTD	
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RELEASED  
2012-05-07

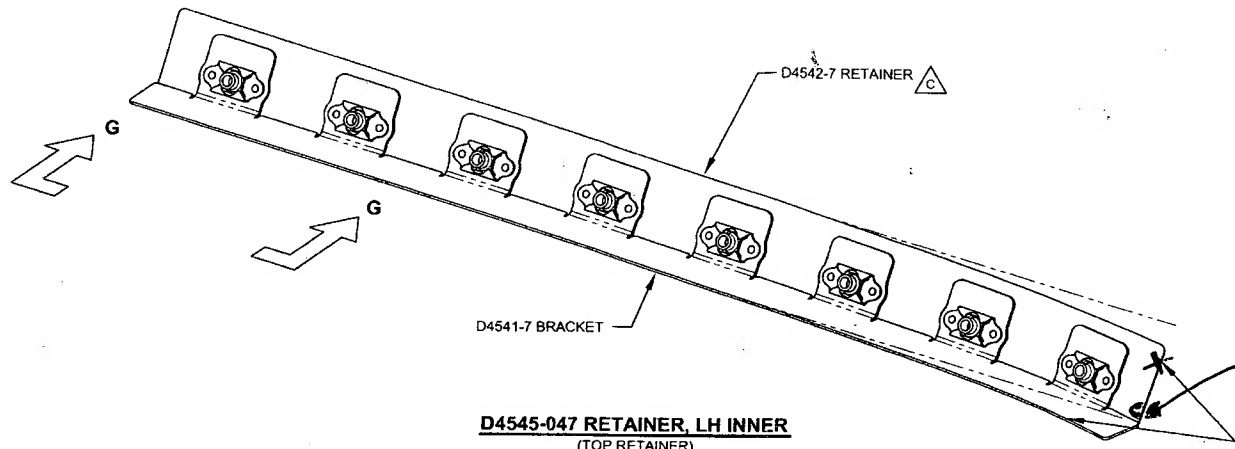
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



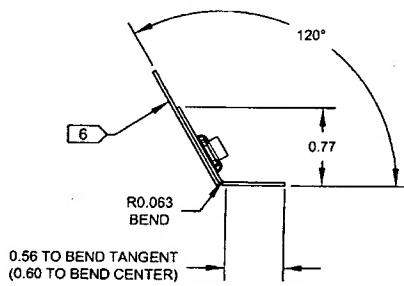
ORIENT NOTCH AS SHOWN  
FOR THIS W/D ONLY

TO BEND/ORIENT PARTS CORRECTLY,  
NOTE LOCATION OF TOOLING MARK IN D4542-7  
IN RELATION TO CURVE IN BASE OF D4541-7

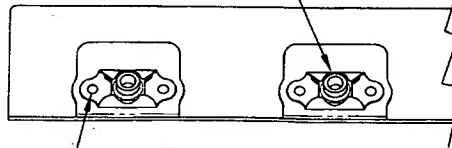
26479

CP 12/7/11

PS1042



MS21059L3K NUTPLATE  
MS20426AD3-4 RIVET, 2X  
8 PL



DIMPLE Ø0.180 X 100°  
Ø0.098 HOLES ONLY  
FAR SIDE, 16 PL

**VIEW G-G**  
NOT TO SCALE

RELEASE  
2012-05-03

DESIGN	9P	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	9P		
CHECKED	ASS	DRAWING NO. D4545	REV. C
MFG. APPR.	MA	SHEET 8 OF 9	
APPROVED	MA	TITLE	SCALE
DE APPR.	MA	RETAINER, INNER	NTS
DATE	12.04.20	<small>COPYRIGHT © 2012 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR REPRODUCED IN ANY MANNER WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

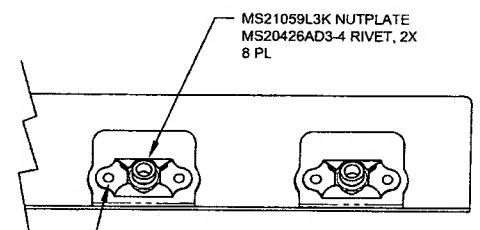
**NOTE:** Date & initial all entries

8 7 6 5 4 3 2 1

86479

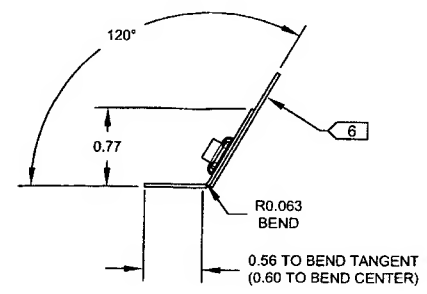
TO BEND/ORIENT PARTS CORRECTLY,  
NOTE LOCATION OF TOOLING MARK IN D4542-7  
IN RELATION TO CURVE IN BASE OF D4541-7

**D4545-048 RETAINER, RH INNER**  
(TOP RETAINER)



DIMPLE Ø0.180 X 100°  
Ø0.098 HOLES ONLY  
FAR SIDE, 16 PL

**VIEW H-H**  
NOT TO SCALE



2012-05-07

DESIGN		<b>DART AEROSPACE LTD</b>	
DRAWN	92	HAWKESBURY, ONTARIO, CANADA	
CHECKED	ASS	DRAWING NO. D4545	REV. C
MFG. APPR.	AD	SHEET 9 OF 9	
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DE APPR.		RETAINER, INNER	NTS
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8 7 6 5 4 3 2 1

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No.: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries